

Amendments to the Claims:

Claims 1 - 46 cancelled

47. (Previously Presented) An optical examination device for *in vivo* examination of biological tissue, comprising:

an optical source for emitting light in the visible to infrared range and an optical detector for detecting light;

an array of optical fibers including end portions freely protruding from a support and arranged for engaging the scalp or skin of a subject at distal ends of said fibers, said optical fibers including proximal ends arrayed for coupling light from said light source into source fibers and for coupling light from detector fibers into said optical detector by indexing in space fiber locations with respect to tissue positions corresponding to said distal ends engaging the scalp or skin of said subject; and

a controller constructed and arranged to control operation of said light source and said optical detector and control introduction and detection of light at said arrayed proximal ends.

48. (Currently Amended) The optical examination device of claim 47 further including means for directing light into said source fibers ~~the fiber~~.

49. (Previously Presented) The optical examination device of claim 47 in which the fibers are single mode fibers.

50. (Currently Amended) The optical examination device of claim 47 in which the fibers are resiliently flexible laterally to bend and conform a pattern of said distal ends ~~fiber tips~~ to variations in said engaged scalp or skin ~~the shape of the skull, breast or other portion of the body~~.

51. (Previously Presented) The optical examination device of claim 47 in which the freely extending end portions of the fibers have a length to diameter ratio of between about 5 and 200.

52. (Previously Presented) The optical examination device of claim 51 in which the ratio is between about 20 and 150.

53. (Previously Presented) The optical examination device of claim 52 in which the ratio is between about 50 and 125.

54. (Previously Presented) The optical examination device of claim 47 in which the free end portions of the optical fibers have diameter of the order of 0.1 to 3.0 millimeter and have a length between about 0.5 to 3 cm.

55. (Previously Presented) The optical examination device of claim 54 in which the free end portions of the optical fibers have diameter of about 0.2 to 0.5 millimeter and length between about 1 and 2.5 cm.

56. (Currently Amended) The optical examination device of claim 47 constructed as a handheld probe, and being sized and configured to be moved and placed against a ~~the~~ breast.

57. (Previously Presented) The optical examination device of claim 47 constructed as a handheld probe, and being sized and configured to be moved and placed against the head.

58. (Previously Presented) The optical examination device of claim 47 wherein said distal ends of said fibers are constructed for placement against the head.

59. (Currently Amended) The optical examination device of claim 47, wherein said distal ends of said fibers are constructed for placement against a ~~[[the]]~~ breast.

60. (Previously Presented) The optical examination device of claim 58, wherein the end portions of the fibers have smooth, enlarged tips adapted to comfortably engage the scalp.

61. (Previously Presented) The optical examination device of claim 58, wherein said optical fibers are arranged with respect to said support to transmit selected pressure in a resiliently compliant manner.

62. (Currently Amended) The optical examination device of claim 58 ~~[[59]]~~, wherein the end portions of the fibers have smooth, enlarged tips adapted to comfortably engage the scalp.

63. (Previously Presented) The optical examination device of claim 59, wherein said optical fibers are arranged with respect to said support to transmit selected pressure in a resiliently compliant manner.

64. (Previously Presented) The optical examination device of claim 47, including a disposable protective element adapted for engagement with the skin or scalp.

65. (Currently Amended) The optical examination device of claim 64 ~~[[62]]~~, wherein said disposable protective element includes an end cup or sleeve disposably surrounding said distal end of said optical fiber freely protruding as a cantilever from a support.

66. (Currently Amended) The optical examination device of claim 64 ~~[[62]]~~, wherein said disposable protective element is used with a dispenser constructed to apply several said disposable elements to said distal end.

67. (Currently Amended) The optical examination device of claim 65 ~~[[64]]~~, including a dispenser constructed to hold wherein multiple said end caps or sleeves are held in alignment by said dispenser in position to be entered by corresponding fibers by juxtaposition of said dispenser with the corresponding fibers.

68. (New) The optical examination device of claim 64, including a dispenser constructed to hold multiple of said protective elements aligned for entering corresponding fibers by juxtaposition of said dispenser with the corresponding fibers.

69. (New) An optical method for *in vivo* examination of biological tissue, comprising the acts of:

emitting light from a light source generated in the visible to infrared range;

detecting light by an optical detector;

positioning an array of optical fibers in optical contact with the scalp or skin of a subject, wherein end portions of said fibers are freely protruding from a support and are arranged to engage the scalp or skin at distal ends of said fibers, said optical fibers including proximal ends arrayed for coupling light from said light source into source fibers and for coupling light from detector fibers into said optical detector;

indexing in space fiber locations with respect to tissue positions corresponding to said distal ends in said optical contact with the scalp or skin of said subject; and

controlling operation of said light source and said optical detector to achieve introduction of light into said arrayed proximal ends after said emission, and achieve detection of light from said arrayed proximal ends based on said indexing.

70. (New) The optical method of claim 69, including moving said end portions of said fibers to engage a different region of said scalp or skin by displacing said support.

71. (New) The optical method of claim 69, including sliding disposable protective end cups over said distal ends prior to engagement with the skin or scalp.